



# Climate Change and Health Care in Maryland

Wicomico County Public Health Grand Rounds  
Peninsula Regional Medical Center  
October 21, 2014

# Learning Objectives

At the end of this session, participants will be able to:

- ▶ Describe how Maryland is using climate models and forecasts to predict the health impacts of climate change in regions of Maryland
- ▶ Discuss the specific projections that might involve this region and health conditions of interest
- ▶ Understand the significance of climate change in the context of specific conditions such as asthma

# Case History

- ▶ You are evaluating a 7 year old boy with a 3 y year history of asthma. According to his mother, he has attacks daily, triggered by pollen, mold, and dust. Misses school about a day a month due to asthma. Wakes from sleeping with asthma 1 – 2 x/week.
- ▶ Meds: Albuterol rescue inhaler, used daily
- ▶ PMHx: Hospitalized once, age 5 – no intubation. No other medical issues.
- ▶ Physical exam – no active wheezing
- ▶ Peak flow meter --

# What are your asthma patients' most concerning exposures/triggers?

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- A. Tobacco smoke
- B. Other smoke  
(incense, candles)
- C. Furry or feathered  
pets
- D. Rodents
- E. Cockroaches
- F. **Mold**
- G. URIs/viruses
- H. **Pollen**
- I. Outdoor pollutants
- J. Unvented gas  
appliances
- K. I don't know
- L. Other

# Managing the Asthma

## Medical Management

- ▶ Control sx's to maintain (near) normal lung function and normal activity levels
- ▶ Minimize use of short-acting  $\beta$ -agonists

## Environmental Management

- ▶ Avoid environmental tobacco smoke
- ▶ Assessment for triggers

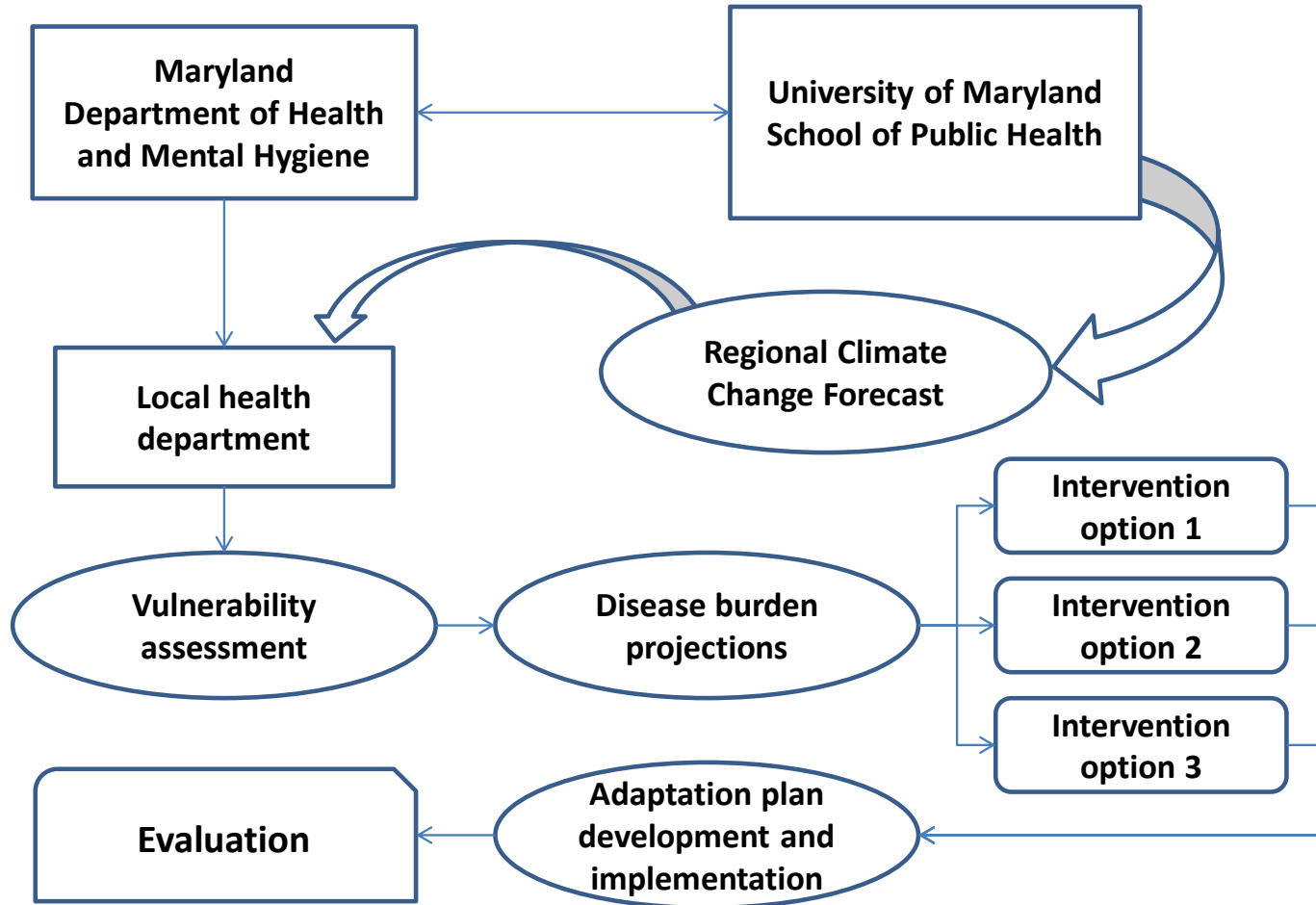
# Home Environmental Assessment

- ▶ Goal – to identify triggers, educate, provide feedback to providers and points of care
- ▶ Who can provide – different models (nurses, environmental health specialists, community health workers)
- ▶ New models of care – Maryland working to develop innovative reimbursement and integrated care models involving improved communication, care coordination

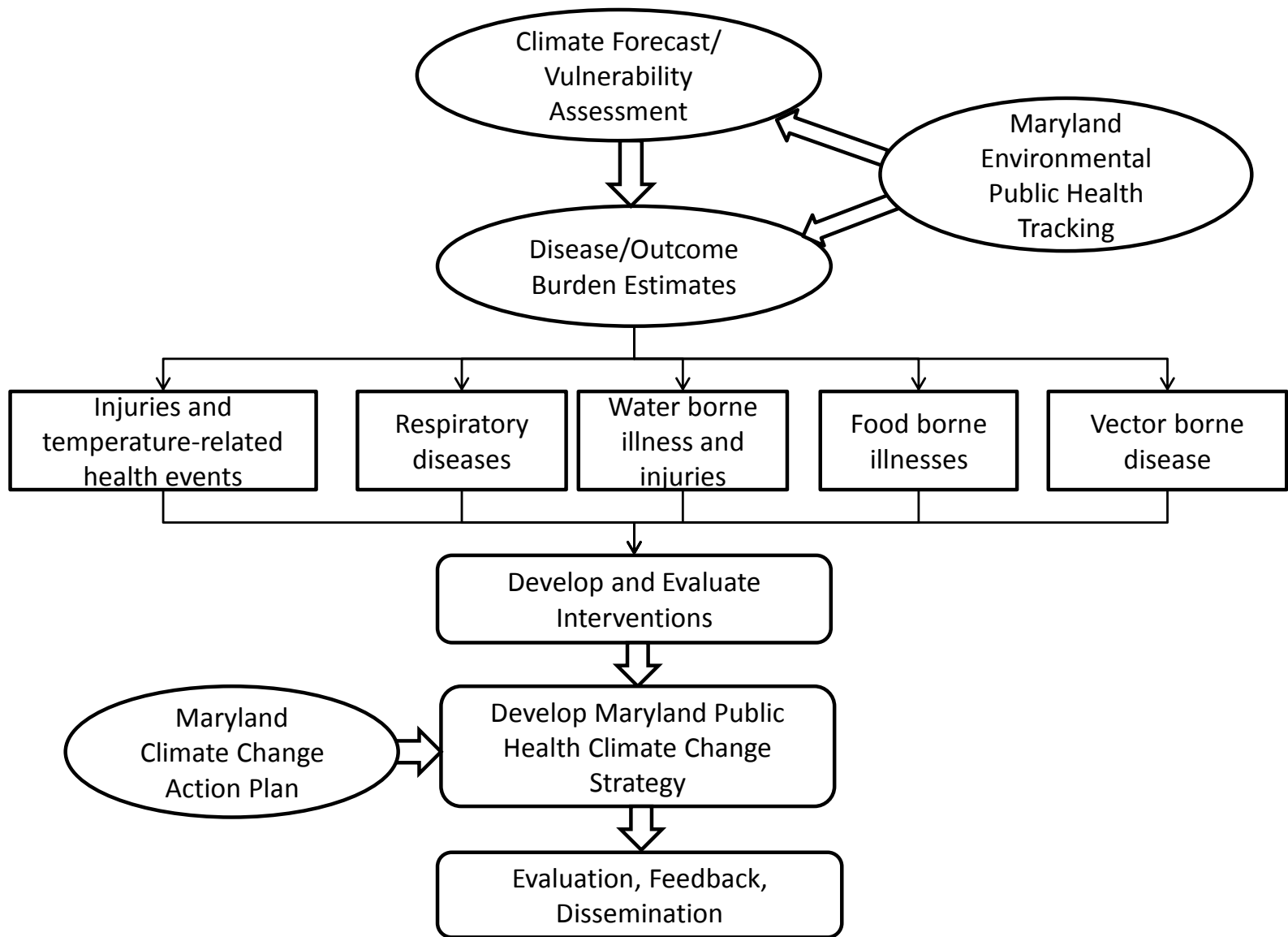
# Why Do We Care About Climate Change Here?

- ▶ Talking with your patient about triggers
  - Mold
  - Pollen
- ▶ Assessing triggers at home
  - Environmental assessment
- ▶ Thinking about the future

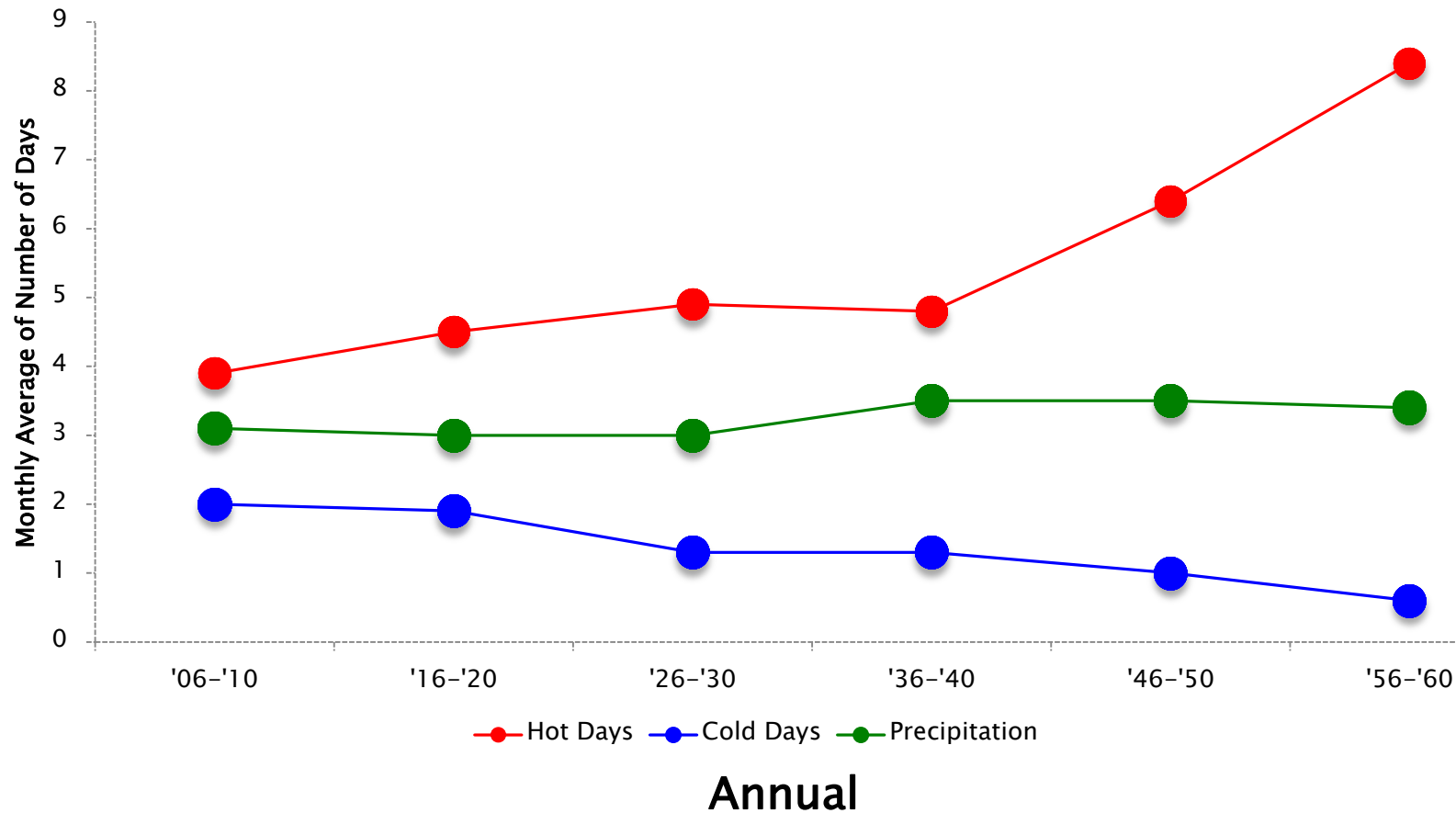
# Maryland Public Health Climate Change Strategy



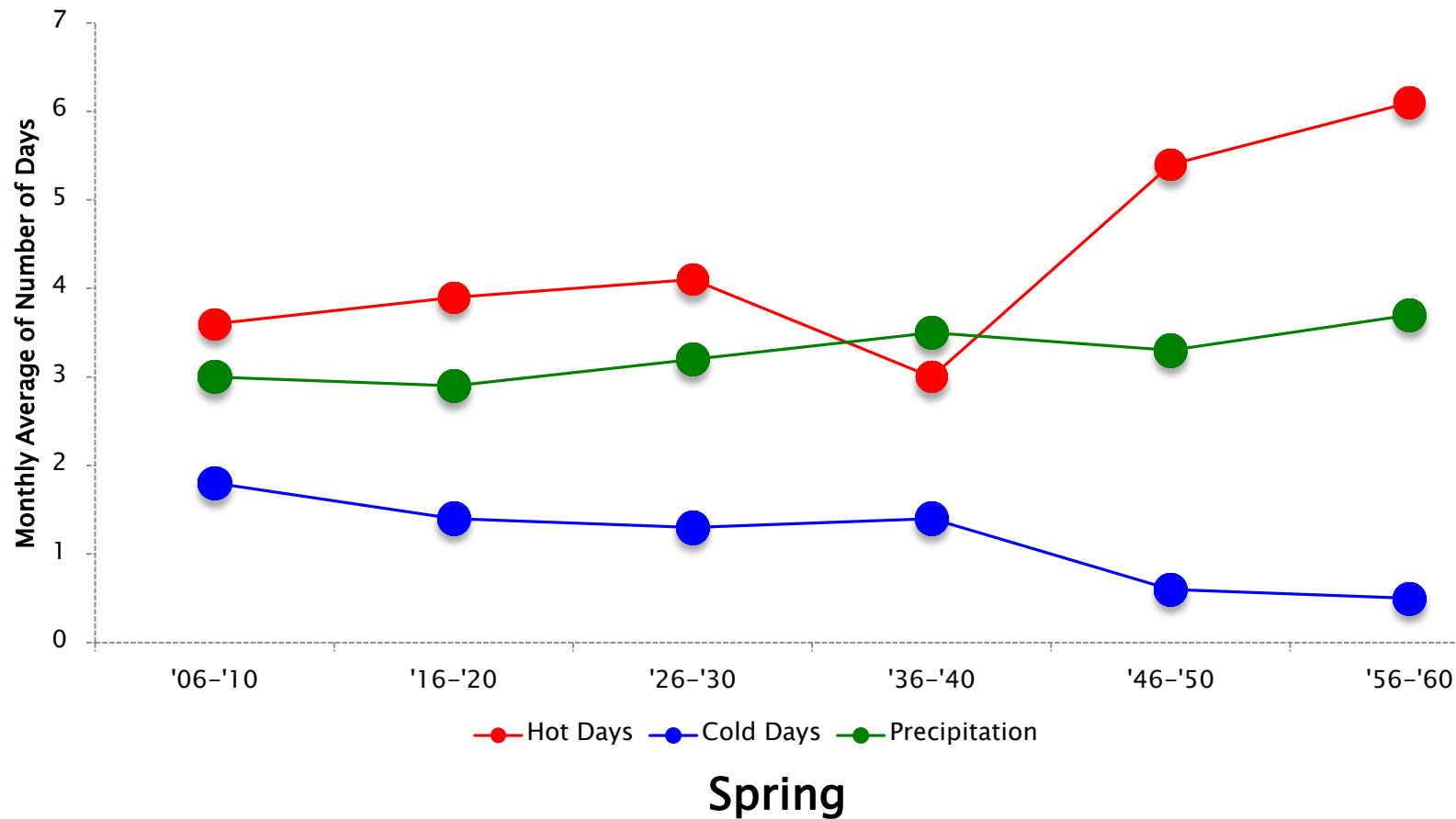




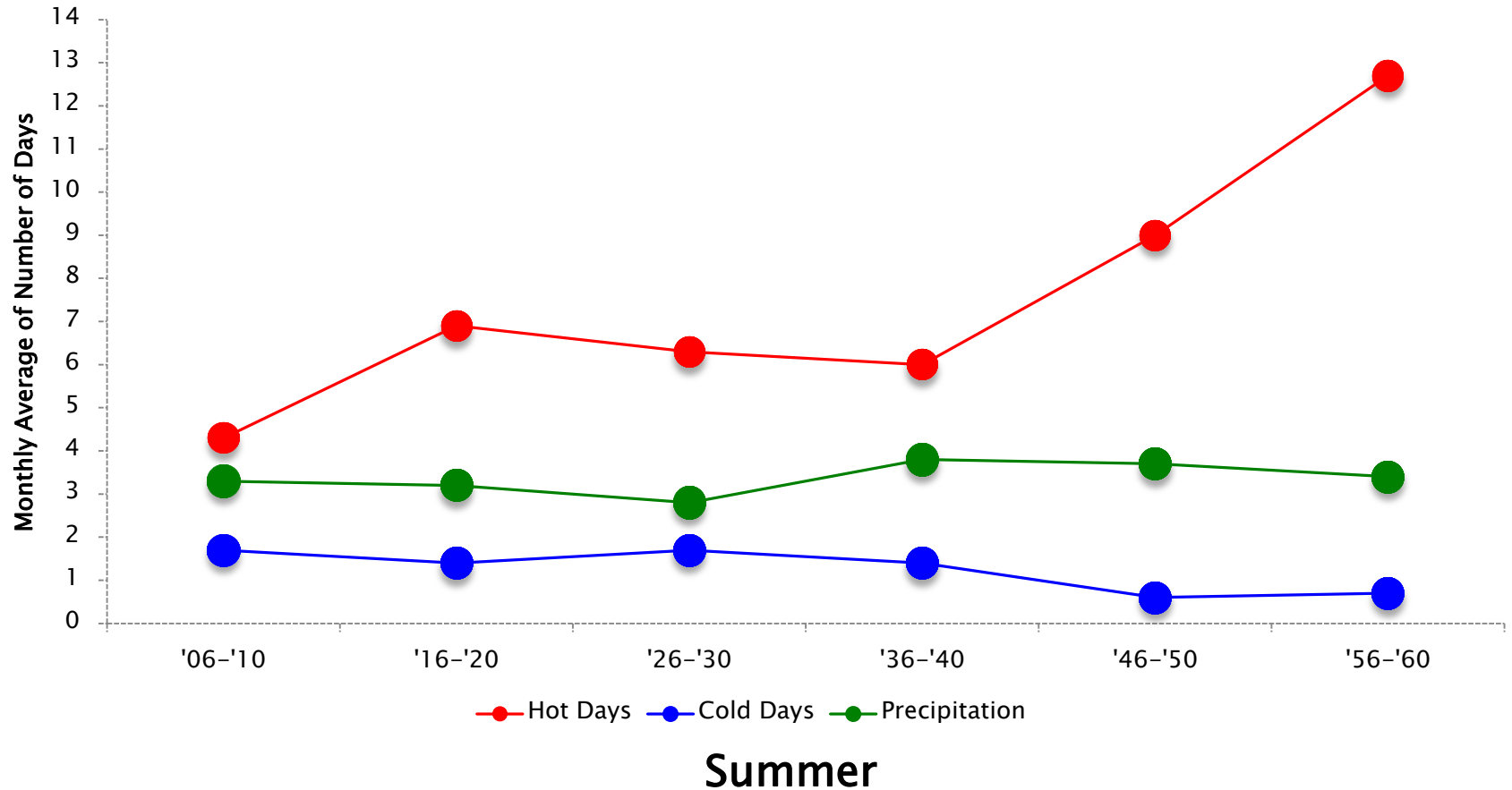
# Climate Forecasts (10<sup>th</sup> Percentile)



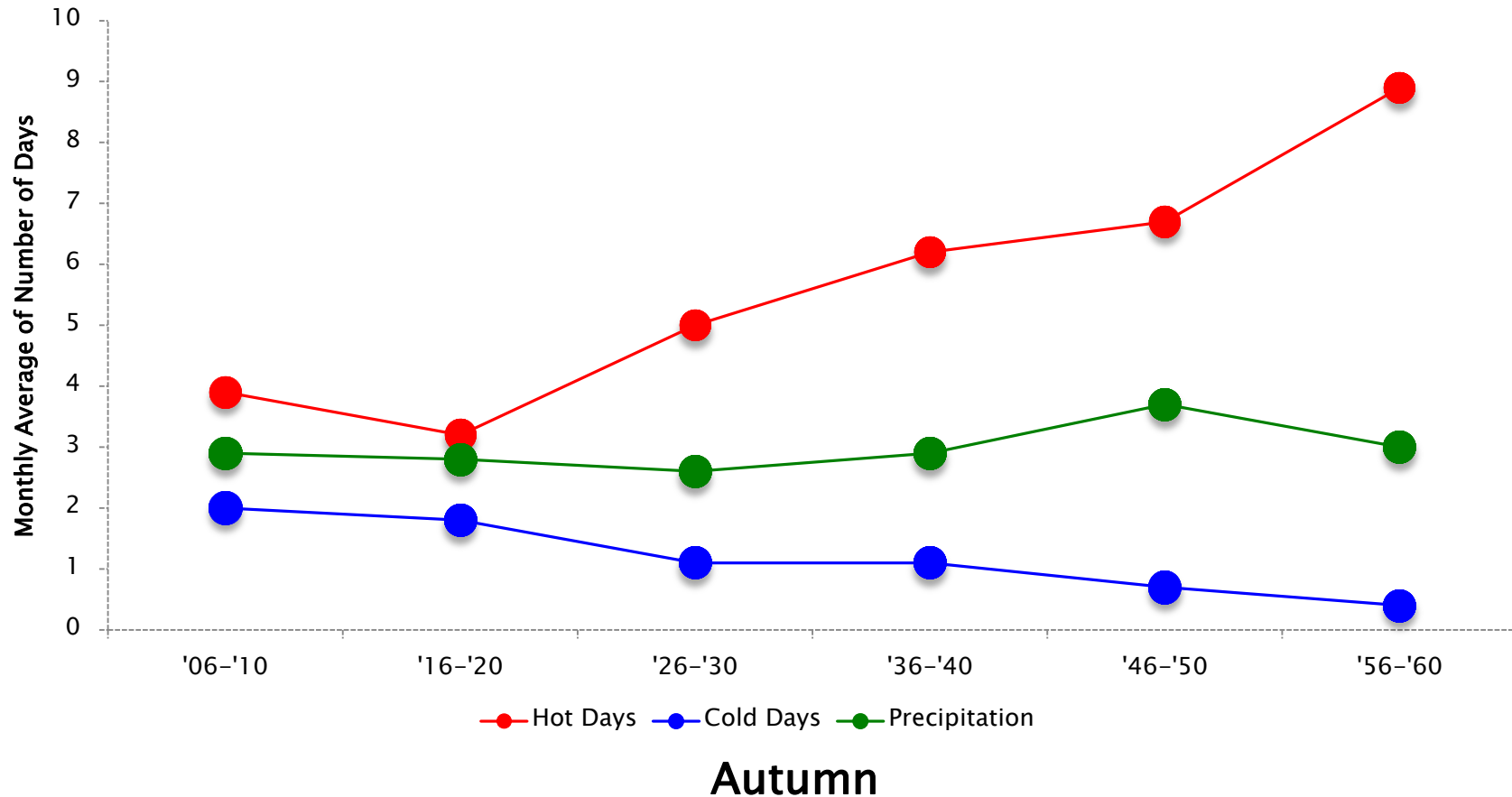
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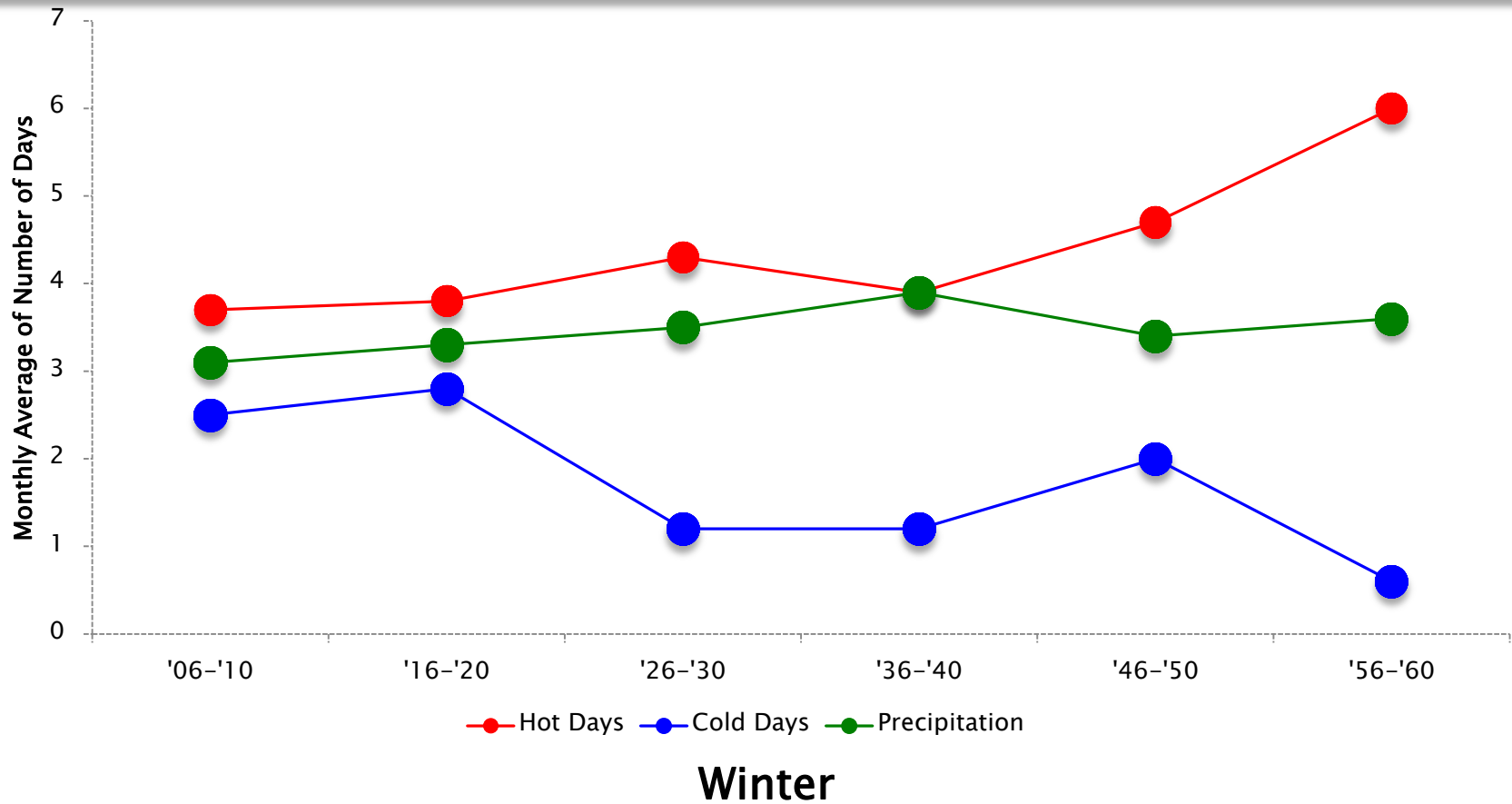
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# Potential Regional Consequences

- ▶ Earlier, hotter summers lasting longer
- ▶ Increasing number of very hot days
- ▶ Potential for increase in precipitation, mold growth
- ▶ Increasing pollen concentrations
- ▶ Increased high ozone, particulate days with poor air quality
- ▶ Depends on other factors (precipitation, fuel mix, regulatory reform)

# Implications For Your Patient

- ▶ We are seeing effects already
- ▶ Health department initiatives on outdoor air pollution
- ▶ Increasing vulnerability for some populations
- ▶ Need to look for opportunities to coordinate care, decrease triggers, improve outcomes



# Implications for Asthma

- ▶ Another way to engage with patients on prevention messages (flags on schools)
- ▶ Asthma Action Plans
- ▶ New strategies on care coordination and reimbursement

Medicaid Enrolees with  
Moderate or Severe  
Persistent Asthma

Managed Care/  
Primary Care

Case  
Management/Ca  
re Coordination

- Community health worker training
- Asthma friendly child care
- Asthma friendly schools
- Medicaid reimbursement for environmental assessments, trigger reduction services, case management services

- Quality Improvement for Provider Practices
- Training of Asthma Friendly Pharmacies
- Grand Rounds Training for Health Care Providers
- Policies on Smoke-Free Multi-Unit and Public Housing
- Private Payer policies on reimbursement for environmental assessments, trigger reduction services, case management services

↑ Knowledge of self-  
management practices  
↑ Improved practices to reduce  
exposures to triggers

↓ ED Visits  
↓ Hospitalizations  
↑ Use of guidelines-based care  
↓ Global costs

All People with Asthma  
(Not Enrolled in  
Medicaid)

Primary Care

- Healthiest Maryland Businesses
- Chronic Disease Self Management Model for Older Adults

# Asthma Action Plans

## Asthma Action Plan

For: \_\_\_\_\_ Doctor: \_\_\_\_\_ Date: \_\_\_\_\_  
 Doctor's Phone Number: \_\_\_\_\_ Hospital/Emergency Department Phone Number: \_\_\_\_\_

### GREEN ZONE

#### Doing Well

- No cough, wheeze, chest tightness, or shortness of breath during the day or night
- Can do usual activities

And, if a peak flow meter is used,

Peak flow: more than \_\_\_\_\_  
 (80 percent or more of my best peak flow)

My best peak flow is: \_\_\_\_\_

Before exercise

Take these long-term control medicines each day (include an anti-inflammatory).

Medicine	How much to take	When to take it
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
Before exercise	<input type="checkbox"/> _____ <input type="checkbox"/> 2 or <input type="checkbox"/> 4 puffs	5 minutes before exercise

### YELLOW ZONE

#### Asthma Is Getting Worse

- Cough, wheeze, chest tightness, or shortness of breath, or
- Waking at night due to asthma, or
- Can do some, but not all, usual activities

-Or-

Peak flow: \_\_\_\_\_ to \_\_\_\_\_  
 (50 to 79 percent of my best peak flow)



Add: quick-relief medicine—and keep taking your GREEN ZONE medicine.

\_\_\_\_\_ ☐ 2 or ☐ 4 puffs, every 20 minutes for up to 1 hour  
 (short acting beta<sub>2</sub>-agonist) ☐ Nebulizer, once

If your symptoms (and peak flow, if used) return to GREEN ZONE after 1 hour of above treatment:  
☐ Continue monitoring to be sure you stay in the green zone.

-Or- If your symptoms (and peak flow, if used) do not return to GREEN ZONE after 1 hour of above treatment:

- ☐ Take: \_\_\_\_\_ ☐ 2 or ☐ 4 puffs or ☐ Nebulizer
- ☐ Add: \_\_\_\_\_ (short acting beta<sub>2</sub>-agonist) \_\_\_\_\_ mg per day For \_\_\_\_\_ (3–10) days
- ☐ Call the doctor ☐ before/ ☐ within \_\_\_\_\_ hours after taking the oral steroid.

### RED ZONE

#### Medical Alert!

- Very short of breath, or
- Quick-relief medicines have not helped, or
- Cannot do usual activities, or
- Symptoms are same or got worse after 24 hours in Yellow Zone

-Or-

Peak flow: less than \_\_\_\_\_  
 (50 percent of my best peak flow)

Take this medicine:

- ☐ \_\_\_\_\_ ☐ 4 or ☐ 6 puffs or ☐ Nebulizer
- \_\_\_\_\_ (short acting beta<sub>2</sub>-agonist)
- ☐ \_\_\_\_\_ mg
- \_\_\_\_\_ (oral steroid)

Then call your doctor NOW. Go to the hospital or call an ambulance if:

- You are still in the red zone after 15 minutes AND
- You have not reached your doctor.

#### DANGER SIGNS

- Trouble walking and talking due to shortness of breath
- Lips or fingernails are blue

Take ☐ 4 or ☐ 6 puffs of your quick-relief medicine AND  
 Go to the hospital or call for an ambulance \_\_\_\_\_ NOW!  
 (phone)

See the reverse side for things you can do to avoid your asthma triggers.



**MARYLAND**  
 Department of Health  
 and Mental Hygiene

# Who Should Have the Asthma Action Plan?

- ▶ Everyone
  - Family
  - Providers
  - School health centers
  - Day care
  - Pharmacist
  - Workplace\*

# DHMH School Programs

- ▶ Mandated School Health Services
  - Asthma Guidelines
  - Students with Special Needs
  - Self-Carry Law, Emergency Needs
- ▶ Asthma Friendly School Program
- ▶ Collaboration of the Asthma Control Program, MSDE, Office of School Health, School Systems, Individual Schools



# Managing Asthma in the School Setting



## MANAGEMENT OF STUDENTS WITH ASTHMA

### MARYLAND STATE SCHOOL HEALTH SERVICES GUIDELINE

FEBRUARY 2013

Maryland State Department of Education  
Student Services and Strategic Planning  
Branch  
200 West Baltimore Street  
Baltimore, Maryland 21201  
Phone: 410-767-0311  
TTY/TDD: 410-333-6442



Maryland Department of Health  
and Mental Hygiene  
Office of School Health  
201 West Preston Street  
Baltimore, Maryland 21201  
Phone: 1-877-463-3464  
TTY/TDD: 1-800-735-2258



- Encourage parents to disclose the student's asthma to the school nurse.
- Discuss with parent and student the need for easy access to quick relief inhaler at school.
- Assess ability to self-carry.
- Assess inhaler technique.
- Ensure that child has one inhaler for school and one for home.
- Complete an individualized asthma action plan.

# Maryland Community Resources

- ▶ American Lung Association  
<http://www.lung.org/associations/states/maryland/>
- ▶ Asthma and Allergy Foundation of America – Greater DC/Maryland Chapter  
[http://www.aafa-md.org/healthcare\\_providers.htm](http://www.aafa-md.org/healthcare_providers.htm)
- ▶ Green and Healthy Homes Initiative  
<http://www.greenandhealthyhomes.org/>
- ▶ Mid-Atlantic Asthma Foundation  
<http://www.asthma-foundation.org/>





# Maryland Community Resources

REFERRAL TO BALTIMORE CITY ASTHMA PROGRAMS	
<b>Fax this form to: (410) 244-1366</b>	<b>Referral Source:</b> _____
<b>Attention: Referral Coordinator</b>	<b>Date of Referral:</b> ____/____/____
Baltimore City Health Department: Community Asthma Program 7 E. Redwood Street, 2 <sup>nd</sup> Floor Baltimore MD 21202 <b>Phone: (410)396-3848</b>	
<b><u>Please Mark Which Program(s) you wish to refer to:</u></b>	
<input type="checkbox"/> <b>Baltimore City Home Visiting Programs: Eligibility:</b> <ul style="list-style-type: none"><li>• Have a moderate to severe asthma diagnosis</li><li>• Be a Baltimore City resident between 2-18 years old</li></ul>	
<input type="checkbox"/> <b>The Baltimore City Community Asthma Education Groups: Eligibility:</b> <ul style="list-style-type: none"><li>• Have or care for a child with an asthma diagnosis</li></ul>	
Child's Name: (first) _____ (last) _____	
Date of Birth: ____/____/____	Age: _____ Gender: <input type="checkbox"/> M <input type="checkbox"/> F
Caregiver's Name: (first) _____ (last) _____	
Address: _____ Apt. #: _____	
Home: (____) _____ work: (____) _____ Cell: (____) _____	
Leave a message: <input type="checkbox"/> Y <input type="checkbox"/> N Interpreter Needed? (Specify language) _____	
Clinic Name: _____	Clinic Phone: (____) _____
School Name: _____	School Phone: (____) _____
Person Providing Referral _____ (MD, ARNP, RN, PHN, parent/guardian, school)	
Phone Number of person providing the referral : (____) _____	
Fax Number of person providing the referral: (____) _____	
Is the family aware of referral? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Note Additional Information:	

## ▶ MD Asthma Control Program

<http://phpa.dhmh.maryland.gov/mch/SitePages/asthma.aspx>

## ▶ Wicomico County Health Department



# Future Directions

- ▶ Implications of changes in health care for asthma
  - Reimbursement
  - Models of Integration
  - Data Needs and Opportunities
- ▶ Opportunities for Collaboration



# Summary

- Asthma exerts influence beyond the office:
  - Home
  - School
  - Community
- Think upstream and connect patients with resources beyond the office
  - Healthy Homes
  - Asthma friendly schools
  - Legal services
  - Asthma action plans



# Contact Us

Rachel Hess–Mutinda, Program Coordinator

- Phone: 410–767–2196
- E-mail: [rachel.hess-mutinda@maryland.gov](mailto:rachel.hess-mutinda@maryland.gov)

Clifford S. Mitchell, Director, Environmental Health Bureau

- Phone: 410–767–6234
- E-mail: [cliff.mitchell@maryland.gov](mailto:cliff.mitchell@maryland.gov)

Cheryl DePinto, Medical Director, Office of School Health

- Phone: 410–767–5595
- E-mail: [cheryl.depinto@maryland.gov](mailto:cheryl.depinto@maryland.gov)

# Other Healthy Homes and Communities Topics

- ▶ Lead
- ▶ Radon
- ▶ Pesticides
- ▶ Chemicals in the Home
- ▶ Carbon Monoxide
- ▶ Injury and Fall Prevention: Keeping Your Patients' Homes Safe for Everyone
- ▶ Provider's Guide to Healthy Workplaces



*Questions?*



# Acknowledgments

Maryland Department of Health and Mental Hygiene  
Environmental Health Bureau  
Office of School Health  
Cancer and Chronic Disease Bureau  
Maternal and Child Health Bureau

Baltimore City Health Department

Green and Healthy Homes Initiative

Johns Hopkins Bloomberg School of Public Health,  
Preventive Medicine Residency Program

U.S. Centers for Disease Control and Prevention